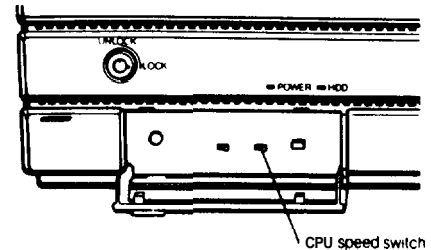


Computer Specifications

CPU	80386 - 20, PGA (132 pins), socketed		
CPU Clock	20 MHz (0 wait states) / 6 MHz (1 wait state); switchable on - the fly; software - controlled switch		
Bus Speed	6 MHz fixed		
DMA Clock	4 MHz fixed		
NPX	60367 - 20, PGA (68 pins), socket only		
NPX Speed	20 MHz fixed		
DRAM	1 MB minimum, 16 MB maximum on the memory board		
BIOS	Two 272K - 20 chips, socketed		
Interface	One serial (9 pins, D - shell) (standard)		
	One parallel (25 pins, D - shell) (standard)		
	One video adapter (optional)		
	One FDD connector (up to 2 FDDs supported) (standard)		
	Two HDD connectors (optional)		
	ESDI (optional)		
	ST506 (optional)		
FDD	5.25 - inch 1.2 MS for # A (standard)		
	3.5 - inch 1.44 MB/720 KB, 5.25' 360 KB for # B (standard)		
HDD	5.25 - inch half - height or full - height (optional)		
	50 MB, ESDI, 1:1 interleave (optional)		
	40 MB, ST506, 1:1 interleave (optional)		
Keyboard	101 -key enhanced keyboard		
Lock	On the front panel		
Switches	Reset		
	Clock speed select (20 MHz/8 MHz)		
	Monitor select (color/monochrome)		
Volume	Audio speaker volume control		
DRAM Expansion	On the main control board		
	16 SIMM sockets		
	Applicable to both [256x1x9] and [1Mx1x9]		
Power Supply Input	115 VAC	Min. 92 V	Max. 4 A
	230 VAC	Max. 132 V	
Frequency		Min. 1% V	Max. 2.5 A
		Max. 265 V	
Power Consumption	115 VAC	49 - 61 Hz	
	230 VAC	Approximately 80 W	
Surge Current		Approximately 60 w	
		42 A 0 - P (0.5 second more)	
Insulation Strength	115 VAC	AC 1.25 kV (1 min.) (AC - FG, AC - secondary)	
	230 VAC	AC 1.25 kV (1 min.) (AC - FG)	
		AC 3.75 kV (1 min.) (AC - secondary)	
Insulation Resistance	25M ohm more (500 VDC) (AC - FG, AC - secondary)		
	1 M ohm more (250 VDC) (SG - FG)		

Environmental Conditions

	OPERATING	NON - OPERATING	STORAGE
Temperature	41°F to 95°F 5°C to 35°C	-4°F to 140°F -20°C to 60°C	-40°F to 140°F -40°C to 60°C
Humidity (non- condensing)	20% to 80%	10% to 90%	5% to 95%
Maximum Wet Bulb	29 degrees	40 degrees	45 degrees
Vibration	0.2 G 0.5 G (HDD)	1 G (no HDD) 0.5 G (HDD)	3 G (no HDD)
Shock (no HDD)	1 G (less than 10 ms)	3 G (less than 10 ms)	30 G (less than 10 ms)
Shock (HDD)	1 G (< 25 mm o-w Hz)	3 G (< 25 mm o-w Hz)	30 G (< 25 mm O-W Hz)
Altitude (HDD)	0 to 3,000 m ASL	-300 to 3,600 m ASL	-300 to 3,600 m ASL



Switch Settings

There are no DIP switches on the Equity 386/20. However, there is a MONITOR SELECT switch, a CPU SPEED switch and a VOLUME CONTROL on the front of the unit in the lower left-hand corner.

Monitor select

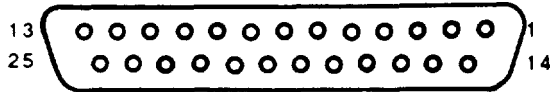
Switch Setting	Monitor
MONO	Monochrome monitor
COLOR	Color, composite, EGA, and VGA monitors

The CPU SPEED switch selects between 8 MHz and 20 MHz. When the computer is running at 8 MHz the power light is red and at 20 MHz the light is green.

The VOLUME CONTROL controls the internal speaker's loudness. Turn it to the right to increase the volume and to the left to decrease the volume.

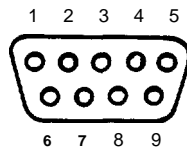
Connector Pin Assignments

Parallel Port Connector



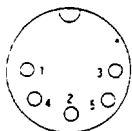
PIN NO.	SIGNAL NAME	DIRECTION	DESCRIPTION
1	- STROBE	O	
2	DATA0	O	Printer Data Bit 0
3	DATA1	O	Printer Data Bit 1
4	DATA2	O	Printer Data Bit 2
5	DATA3	O	Printer Data Bit 3
6	DATA4	O	Printer Data Bit 4
7	DATA5	O	Printer Data Bit 5
8	DATA6	O	Printer Data Bit 6
9	DATA7	O	Printer Data Bit 7
10	- ACK	I	Acknowledge
11	+ BUSY	I	Printer Busy
12	+ PE	I	End of Paper
13	+ SLCT	I	Printer Select
14	- AUTOFT	I	Auto Feed
15	- ERROR	I	Printer Error
16	- INIT	I	Printer Initialize
17	- SLCTIN	I	Printer Select In
18	GND		Ground
19	GND		Ground
20	GND		Ground
21	GND		Ground
22	GND		Ground
23	GND		Ground
24	GND		Ground
25	GND		Ground

Serial Port Connector



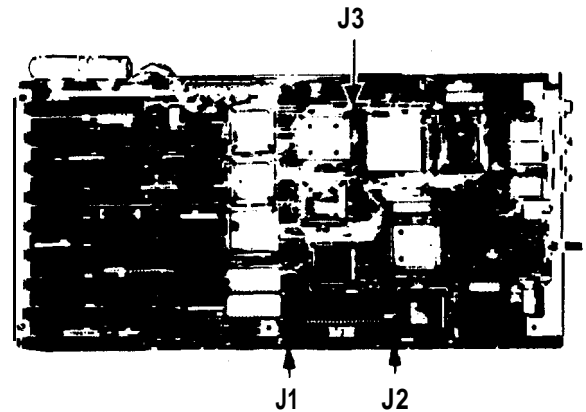
PIN NO.	SIGNAL NAME	DIRECTION	DESCRIPTION
1	CADET	I	Dam Carrier Detect
2	R X D T	I	Receive Dam
3	TXDT	O	Transmit Dam
4	DTR	O	Dam Terminal Ready
5	SG	-	Signal Ground
6	DSR	I	Dam Set Ready
7	RTS	O	Request to Send
8	CTS	I	Clear to Send
9	RI	I	Ring Indicator

Keyboard Connector



Pin Number	Signal Name
1	Clock
2	Data
3	Not Connected
4	Ground
5	+5 VDC
	Ground

Jumper Settings



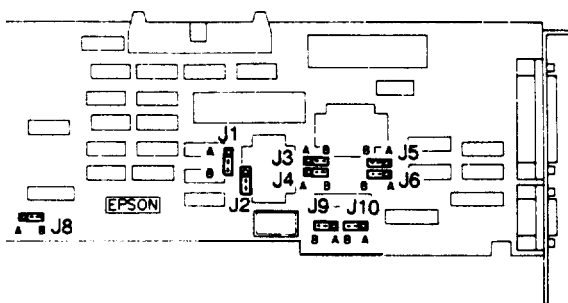
Main Circuit Board

Jumper			Function
1	2	3	
A			<ul style="list-style-type: none"> 27256 BIOS ROM type 27128 BIOS ROM type Must be installed either position 80387 installed * 80387 Not installed
B			
	ON		
	ON		
	OFF		

- Factory Settings

The following table shows the possible configurations you can use:

Memory	Bank 0	Bank 1	Bank 2	Bank 3
1MB	4 x 256KB			
2MB	4 x 256KB	4 x 256KB		
4MB	4 x 1MB			
	or			
	4 x 256KB	4 x 256KB	4 x 256KB	4 x 256KB
8MB	4 x 1MB	4 x 1MB		
10MB	4 x 1MB	4 x 1MB	4 x 256KB	4 x 256KB
16MB	4 x 1MB	4 x 1MB	4 x 1MB	4 x 1MB



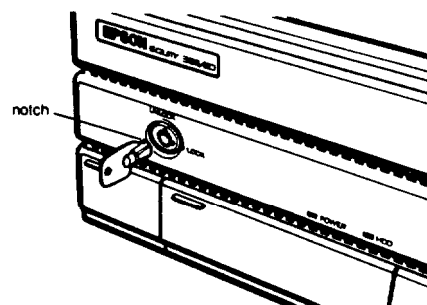
Multifunction Board

Jumper											Function
1	2	3	4	5	6	7	8	9	10		
1	A										• Primary register set (AI FDC) Secondary register set (AT FDC) PC register set (FDC) Disable FDC register set
3	A										• Primary parallel I/F, IRQ7 Secondary parallel I/F, IRQ5 Video adapter parallel I/F, IRQ7 Disable parallel I/F
4	B										• Primary serial I/F, IRQ4 Secondary serial I/F, IRQ3 Disable serial I/F
3	B										• AT-compatible FDD I/F Equity III FDD I/F
		A	A						A		• Standard setting Test mode of VCO
		A	B						B		
		B	A						A		
		B	B						B		
				A	A				A		
				A	B				B		
				B-					-		
						A			A		
						B			B		

- Factory Settings

I/O Port Addresses

Address	Function
000-01F	DMA Controller 1
020-03F	Interrupt Controller 1
022-023	Configuration Registers
040-05F	Timer/Counter
060-06F	Keyboard Controller
070-07F	Real-Time Clock, NMI Mask
080-09F	DMA Page Register, MFG Port
0A0-0BF	Interrupt Controller 2
0C0-0DF	DMA Controller 2
0F0-0FF	Numeric Coprocessor
170-177	Hard Disk Controller - Secondary
1F0-1F7	Hard Disk Controller - Primary
200-207	Game Port
278-27F	Parallel Port 2
2F8-2FF	Serial Port 2
300-31F	Prototype Card
360-36F	Reserved
378-37F	Parallel Port 1
380-38F	SDLIC, Bisynchronous Communication 2
3A0-3AF	Bisynchronous Communication 1
3B0-3BF	MDA and Printer Port
3C0-3CF	Reserved
3D0-3DF	CGA
3F0-3F7	floppy Disk Controller
3F8-3FF	Serial Port 1



Keylock

The keylock on the front panel allows you to disable the keyboard and RESET button and lock the top cover of the main unit for security. The keyboard may be locked while the system is in operation. This disables the keyboard so no one can interfere with the current operation.

To lock the system, insert the key with the notch pointing left and turn it clockwise. You must press the key in slightly when you turn it. To unlock the system, insert the key with the notch pointing up and turn the key counterclockwise. You can remove the key in either position.

DMA Channels

Channel	Function
0	Spare
1	Spare
2	floppy disk transfers
3	Spare (hard disk drive)
4	Cascade of data from channel 0 - 3
5	Spare
6	Spare
7	Spare

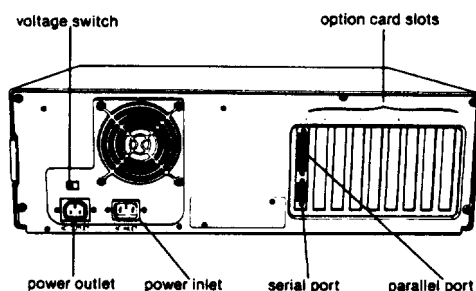
Hardware Interrupts

CTLR1	CTLR2	FUNCTION
IRQ0		Timer Output 0
IRQ1		Keyboard
IRQ2		Interrupt from Controller 2
IRQ3		Serial port 2
IRQ4		Serial port 1
IRQ5		Parallel port 2
IRQ6		Floppy disk interrupt
IRQ7		Parallel port 1
	IRQ8	RTC interrupt
	IRQ9	Redirected to INT0AH
	IRQ10	Reserved
	IRQ11	Reserved
	IRQ12	Reserved
	IRQ13	Coprocessor
	IRQ14	Hard disk controller
	IRQ15	Reserved

Installation/Support Tips

Power

The Equity 386/20 has a power supply that is switchable between 145 V, for USA and Canadian use, and 230 V, for use in Other countries. The voltage switch is located at the rear of the CPU between the AC inlet and the AC outlet (see figure below).



WARNING! The voltage is not changed between the AC inlet and the AC outlet. If the CPU is switched for **230 V** in order to function in Europe, only peripherals certified for use at 230 V should be plugged into the outlet.

Installing floppy Disk Drives

- - - When installing a floppy disk drive as drive B, remember to set the drive select jumper to the second position and attach the pass-through connector on the floppy drive controller cable to the drive, not the end connector.
- - - If the drive does not function normally, make sure that the drive type has been correctly selected in SETUP. Also check that any special drivers that may be necessary have been installed correctly.

Installing Hard Disk Drives

- - - It is recommended that a 16-bit AT -type hard disk controller be used in the Equity 386/20. If you must for some reason use an 8-bit, XT -type controller, select drive type NONE in SETUP.

- - - If you are having difficulty in formatting the hard disk drive, try starting over with the Unconditional Format option in diagnostics.

Setup

- - - When installing an optional expanded memory board or increasing memory on the internal memory board* for use as expanded memory, do not list the memory under the memory expansion option in SETUP. That option is for EXTENDED memory ONLY.
- - - If you are installing an EGA or VGA card, select SPECIAL OPTIONS as display type in SETUP. This holds true even when you are using a color or monochrome monitor with these cards.
- - - When installing a hard disk drive, be sure to consult the drive type tables (on page EQ386/20 -7) for the drive type which fits the drive you are installing.

Adding Memory Modules

- - - The total amount of memory must be one of the following: 1 MB, 2 MB, 4 MB, 8 MB, 10 MB or 16 MB.
- - - Memory banks must be filled with one size SIMM. You cannot mix SIMM types in one bank.
- - - If you are using more than one memory bank, they must be filled in pairs. This means you can use 1, 2, or 4 banks. Each pair must be filled with the same type of SIMMs. You must also fill them in order. That means that the possible combinations are Bank 0, Bank 0 and Bank 1, or all four banks.

Using Shadow RAM

- - - It is only necessary to enable shadow RAM for the video ROM if you are using an EGA or VGA card. CGA, MDA and MGA cards are supported by the system ROM BIOS. Therefore, they are included in the shadow RAM setting for the BIOS ROM.

Software Problems

- - - When installing a copy-protected software package on the Equity 386/20, first try the installation at 20 MHz. If this does not work properly, try switching to 8 MHz for the installation. If you are still unable to load the program at 20 MHz, try loading at 8 MHz and then switching to 20 MHz.
- - - When using a software package that uses a keydisk as its copy-protection method, try loading it at 20 MHz. If this does not work, enable the &to Speed option in SETUP.

Hard Disk Drive Types

Type No.	Type	Cylinders	Heads	Sectors	Precomp	Landing zone	MB	Drive name
00								No fixed disk
01	ST-506	306	4	17	128	305	10.2	(Used by ESDI)
02	ST-506	615	4	17	300	615	20.4	(1)
03	ST-506	615	6	17	300	615	30.6	
04	ST-506	940	8	17	512	940	62.4	
05	ST-506	940	6	17	512	940	46.8	
06	ST-506	615	4	17		615	20.4	
07	ST-506	462	8	17	256	511	30.7	
08	ST-506	733	5	17		733	30.4	
09	ST-506	900	15	17		901	112.1	
10	ST-506	820	3	17		820	20.4	
11	ST-506	855	5	17		855	35.5	
12	ST-506	855	7	17		855	49.7	
13	ST-506	306	4	17	128	319	20.3	
14	ST-506	733	1	17		733	42.6	
15								— reserved —
16	ST-506	612	4	17	0	663	20.3	
17	ST-506	977	5	17	300	977	40.5	CDC 94205-51
18	ST-506	977	7	17		977	56.8	
19	ST-506	1024	7	17	512	1023	59.5	
20	ST-506	733	5	17	300	732	30.4	Toshiba MK 133FA
21	ST-506	733	7	17	300	732	42.6	Toshiba MK 134FA
22	ST-506	733	5	17	300	733	30.4	
23	ST-506	306	4	17	0	336	10.2	
24	ST-506	612	4	17	305	663	20.4	
25	ST-506	306	4	17		340	10.2	
26	ST-506	612	4	17		670	20.4	
27	ST-506	612	7	17	300	732	40.6	
28	ST-506	916	5	17	488	977	40.5	
29	ST-506	306	4	17	0	340	10.2	
30	ST-506	611	4	17	306	663	20.4	
31	ST-506	732	7	17	300	732	42.6	
32	ST-506	1023	5	17		1023	42.5	
33								none
34								none
35								none
36								none
37								none
38								none
39								none
40								none
41	ESDI	1022		34		1022	84.8	CDC 94216-106 (2)
42	ESDI	1022		36		1022	89.8	CDC 94216-106
43	ST-506	1024	4	17	512	1023	68.0	(3)
44	ESDI	326	10	34		828	137.5	Toshiba MK-156F
45	ST-506	1024	17		512	1023	42.5	(4)
46	ST-506	615	4	17	128	618	40.8	NEC D5147H
47								none
48	ST-506	820	6	17		820	40.5	Seagate ST251
49	ST-506	830	10	17		830	58.3	Toshiba MK56FB
50	ST-506	1024	9	17	1024	1024	165	Seagate ST4096
51	ESDI	828	7	34		828	96.2	Toshiba MK-154F
52	ESDI	967	5	36		967	85.0	CDC 94166-101
53	ESDI	967	7	36		967	119.0	CDC 94166-141
54	ESDI	967	9	36		967	153.0	CDC 94166-182
55	ESDI	1022	7	34		1022	118.8	Micropolis 1354A
56	ESDI	967	5	34		967	80.3	CDC 94166-101 (2)
57	ESDI	967	7	34		967	112.4	CDC 94166-141 (2)
58	ESDI	967	9	34		967	144.5	CDC 94166-182 (2)
59-255								none

Notes:

1 Miniscribe 8425F, Seagate ST125

2 For Western Digital ESDI HDD or Drive Maker default setting

3 Micropolis 1325, Atari 3085, Lanstor Lan64, Maxtor XT1085, Newbury NDR1085

4 Micropolis 1323A, Miniscribe 3035, Microscience HH1050, Seagate ST4053

Types 1 through 47 are allocated at 0FE401h, IBM new AT compatible area

Types 48 through 58 are allocated at 0FD2F1h to 0FDFF0h, extended Hard Drive Parameter area

Information Reference List

Engineering Change Notices

None.

Technical Information Bulletins

386/20-001	6/12/89	CHET/CHET-RM Board Connector
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Product Support Bulletins

S-0047A	6/12/89	Using Expanded Memory with the Equity and Apex
S-0082A	6/9/89	Equity Series Computers - ROM History
S-0080	4/19/89	Apex/Apex Plus/Equity Series Keyboards
S-0082	5/16/89	Equity 386/20 Coprocessor Installation
S-0085	6/12/89	Using the EEMM386.EXE Device Driver
S-0086	6/12/89	Common Questions & Answers on the Equity 386/20
S-0067	6/13/89	Tape Backup Systems Test Results
S-0088	7/12/89	Equity/Apex with Sysgen OmniBridge and BridgeFiler Drives
S-0091	8/11/89	Using High Capacity ESDI and SCSI HDDs with the Equity Series
S-0094	8/11/89	Novell Netware Compatibility Test Results for the Equity 386/20

Related Documentation

Y16299100502	4/1/89	Equity 386/20 MSDOS 3.3 Manual
Y16299100200		Equity 386/20 GW-BASIC Manual
M-TM-EQ386		Equity 386/20 Technical Manual
M-PM-EQ386	3/23/89	Equity 386/20 Technical Reference Manual
M-PL-EQ386		Equity 386/20 Parts List
Y18499100100		Equity 386/20 User's Guide